

Claims

1. Mixture for preparing a reactive hot melt adhesive, containing from 10 to 80 per cent by weight of a compound containing free isocyanate groups and from 20 to 90 per cent by weight of a polymer containing hydroxyl groups and/or amino groups and/or mercapto groups and obtainable by polymerizing ethylenically unsaturated monomers, characterized in that the polymer containing hydroxyl groups and/or amino groups and/or mercapto groups has a polydispersity D of less than 1.9.
2. Mixture according to Claim 1, characterized in that the polymer containing hydroxyl groups and/or amino groups and/or mercapto groups is obtainable by copolymerizing one or more hydroxy-functionalized and/or amino-functionalized and/or mercapto-functionalized monomers and one or more monomers without hydroxyl and/or amino and/or mercapto functionality of alkyl esters of acrylic or methacrylic acid, vinyl esters, vinyl ethers, fumarates, maleates, styrenes and acrylonitriles.
3. Mixture according to Claim 1, characterized in that polymer containing hydroxyl groups and/or amino groups and/or mercapto groups has a glass transition temperature in the range from 15 to 85°C.
4. Mixture according to Claim 2, characterized in that the polymer containing hydroxyl groups and/or amino groups and/or mercapto groups has a number-average molecular weight of greater than or equal to 5000 g/mol and less than or equal to 100 000 g/mol.

5. Mixture according to Claim 2, characterized in that the polymer containing hydroxyl groups and/or amino groups and/or mercapto groups has a hydroxyl number of greater than or equal to 4 and less than or equal to 80.
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6. Mixture according to Claim 4 or 5, characterized in that the polymer containing hydroxyl groups and/or amino groups and/or mercapto groups has a hydroxyl number of less than or equal to 40 for a number-average molecular weight of greater than or equal to 5000 g/mol and less than or equal to 25 000 g/mol.
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7. Mixture according to one of Claims 1 to 6, characterized in that the polydispersity of the polymer containing hydroxyl groups and/or amino groups and/or mercapto groups is adjusted by fractionation according to the molecular weight.
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8. Mixture according to one of Claims 1 to 6, characterized in that the polymer containing hydroxyl groups and/or amino groups and/or mercapto groups has been prepared by a polymerization mechanism which enables a polydispersity D of less than 1.8.
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9. Mixture according to Claim 8, characterized in that the polymer containing hydroxyl groups and/or amino groups and/or mercapto groups has been obtained by anionic polymerization, RAFT or ATRP.
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10. Mixture according to one of the preceding claims, characterized in that the compound containing free isocyanate groups is a low molecular mass diisocyanate and contains an organic radical with an aromatic.
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11. Mixture according to one of the preceding claims,
characterized in that the compound containing free
isocyanate groups is obtainable by condensation
polymerization of one or more low molecular mass
polyisocyanates with one or more polyhydroxy
compounds to form a urethane prepolymer.
12. Mixture according to one of the preceding claims,
characterized in that the compound containing free
isocyanate groups is obtainable by condensation
polymerization of one or more low molecular mass
polyisocyanates with one or more polyamino- and/or
polymercapto-containing compounds either alone
together with one or more polyhydroxy compounds to
form a urethane prepolymer.
13. Mixture according to one of Claims 10 to 12,
characterized in that the reactive hot melt
adhesive has an isocyanate functionality of
greater than 1 and less than or equal to 3.
14. Mixture according to one of the preceding claims,
characterized in that it further comprises
additives such as plasticizers, compatible tacki-
fiers, catalysts, fillers, antioxidants, pigments,
stabilizers and thiol/silane-based adhesion
promoters.
15. Reactive hot melt adhesive obtainable by
condensation reaction of the polymer containing
hydroxyl groups and/or amino groups and/or
mercapto groups with the compound containing free
isocyanate groups of a mixture according to
Claim 1 to 14.
16. Reactive hot melt adhesive according to Claim 15,
characterized in that it exhibits a viscosity
increase of less than 50% after 16 hours at 130°C.

17. Reactive hot melt adhesive according to Claim 15, characterized in that after curing it contains less than 10 per cent by weight of extractables.
- 5 18. Reactive hot melt adhesive according to Claim 15, characterized in that it has an open time of more than 400 seconds.
- 10 19. Reactive hot melt adhesive according to Claim 15, characterized in that it has a shear strength after curing of more than 10 MPa.
- 15 20. Use of the reactive hot melt adhesive of the invention for adhesively bonding wood, metal, plastic and glass surfaces or combinations thereof.